

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/AU2004/001570

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. <sup>7</sup>: C07C 211/63, 237/08; C07D 213/04, 233/64, 295/037, 453/02; C07F 9/54; A61K 31/14, 31/66; A61P 31/04, 31/12, 33/00.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
See electronic database consulted below.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
STN File CA: Substructure search and molecular formula search (C18H42N2.2Br). STN File Medline, CA, WPIDS, Biosis: Keywords-quaternary(w)ammonium, quaternary(w)phosphonium, bis(w)ammonium, bis(w)phosphonium, microb?, ?fungal, ?parasit?, ?bacteria?, ?viral, phospholip?

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	GANENDREN, R. et al., In Vitro Antifungal Activities of Inhibitors of Phospholipases from the Fungal Pathogen <i>Cryptococcus neoformans</i> . Antimicrobial Agents and Chemotherapy (2004), 48(5), 1561-1569 (see the whole document)	1-17
X	CALAS, M. et al., Antimalarial Activity of Molecules Interfering with <i>Plasmodium falciparum</i> Phospholipid Metabolism. Structure-Activity Relationship Analysis. Journal of Medicinal Chemistry (1997), 40, 3557-3566 (see in particular page 3558, table 1g and especially compounds G4, H3 and HC3)	1-7, 9-11

☒ Further documents are listed in the continuation of Box C

☒ See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 9 December 2004	Date of mailing of the international search report 15 DEC 2004
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer  MARIE-ANNE FAM Telephone No : (02) 6283 2254

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ANCELIN, M. L. et al., In Vivo Antimalarial Activities of Mono- and Bis Quaternary Ammonium Salts Interfering with <i>Plasmodium</i> Phospholipid Metabolism. Antimicrobial Agents and Chemotherapy (2003), 47(8), 2598-2605 (see in particular page 2600, table 2 and especially compounds G4, G84 and H5)	1-7, 9-11
X	ANCELIN, M. L. et al., Potent Inhibitors of <i>Plasmodium</i> Phospholipid Metabolism with a Broad Spectrum of In Vitro Antimalarial Activities. Antimicrobial Agents and Chemotherapy (2003), 47(8), 2590-2597 (see in particular page 2592, table 1 and especially compounds G4 and H5)	1-7, 9-11
X	WO 1998/004252 A1 (VIRBAC S.A.) 5 February 1998 (see in particular examples 27, 28 and 30 and the claims)	1-11
X	EP 494 613 A2 (TEIJIN LIMITED) 15 July 1992 (see in particular page 14, compounds a, b, d and g and claim 5)	1-7
X	JP 2000-313171 A (MITSUBISHI PAPER MILLS LTD) 14 November 2000 (see in particular page 11, compounds 4-14 and 4-17)	1-7
X	STN File CA, abstract 126:180319 & NOBLE, G. W. et al., Angewandte Chemie, International Edition in English (1997), 36(1/2), 81-83 (see abstract and CAS Registry No. 187099-30-5 and 187099-31-6)	1-7
X	STN File CA, abstract 129:294300 & MACHTLE, P. and HELMA, C. A., Thin Solid Films (1998), 330(1), 1-6 (see abstract and CAS Registry No. 214341-71-6)	1-7
X	STN File CA, abstract 132:116550 & BARRETT, P. A. et al., Proceedings of the International Zeolite Conference (1999), Meeting Date 1998, 3, 1495-1502 (see abstract and CAS Registry No. 255903-74-3)	1-7
X	STN File CA, abstract 91:101848 & MIKHEL'SON, M. Y. et al., Farmakologiya i Toksikologiya (1979), 42(3), 234-239 (see abstract and CAS Registry No. 70988-76-0, 70988-77-1 and 70988-78-2)	1-7
X	STN File CA, abstract 130:38597 & LYON, A. P. et al., Canadian Journal of Chemistry (1998), 76(6), 843-850 (see abstract)	1-7

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C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	STN File CA, abstract 132:231503 & CALAS, M. et al., Journal of Medicinal Chemistry (2000), 43(3), 505-516 (see abstract and CAS Registry No. 201849-41-4, 201849-42-5 and 261719-81-7)	9-11

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**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: **1-17 (in part)**  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
The claims are extremely broad in scope and encompass a vast number of possible compounds. A complete search of the claims was therefore not feasible. Consequently the search was based on quaternary ammonium and quaternary phosphonium derivatives as exemplified in the specification.
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
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This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
WO	1998/004252	BR	9710629	CA	2261851
		EP	917465	FR	2751967
		US	6096788		
EP	494613	JP	4270726	JP	5009367
JP	2000313171		NONE		
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.					
END OF ANNEX					